Chronic pelvic pain as a somatoform disorder

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Abstract: BACKGROUND: The purpose of this study was to determine whether psychiatric disturbances, particularly somatization, and an increased number of traumatic and critical life events, which have been found in women with idiopathic chronic pelvic pain (ICPP), can also be observed in women with chronic pelvic pain and abdominal adhesions (ACPP). METHODS: Forty women who underwent diagnostic laparoscopy were subdivided into three groups according to blind rated somatic pathologies: ICPP patients (n = 16), ACPP patients (n = 10), infertile controls without pain (n = 14). Besides the standardized assessment of DSM-III-R diagnosis, questionnaires and semistandardized interviews were used to estimate depression, somatization, pain, the prevalence of sexual and physical abuse, and the number of critical life events. RESULTS: Diagnostic criteria for somatoform pain disorder were fullfilled in 73.3% of the ICPP patients, 60% of the ACPP patients and none of the controls. With respect to the somatization symptom checklist the two pain groups scored significantly higher than the controls ($p < 0.05$). Referring to perceived pain, ACPP patients differed from the ICPP patients by one out of seven subscales (higher persistence of pain; $p < 0.05$). No correlation was found between the intensity of pain and the severity of classified adhesions. The two groups of pain patients significantly differed from controls by a higher prevalence of sexual abuse ($p < 0.05$). Depression was found neither in the pain groups nor in the controls. CONCLUSIONS: Because high somatization and high prevalence rates of abuse were not only found in patients suffering from ICPP but also in ACPP patients, it seems to be doubtful that the somatic pathology may fully explain the psychopathology in patients with ACPP.

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Chronic Pelvic Pain as a Somatoform Disorder

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Key Words

Chronic pelvic pain · Adhesions · Somatoform disorders · Posttraumatic stress disorder · Chronic stress · Trauma

Abstract

Background: The purpose of this study was to determine whether psychiatric disturbances, particularly somatization, and an increased number of traumatic and critical life events, which have been found in women with idiopathic chronic pelvic pain (ICPP), can also be observed in women with chronic pelvic pain and abdominal adhesions (ACPP). ***Methods:*** Forty women who underwent diagnostic laparoscopy were subdivided into three groups according to blind rated somatic pathologies: ICPP patients (n = 16), ACPP patients (n = 10), infertile controls without pain (n = 14). Besides the standardized assessment of DSM-III-R diagnosis, questionnaires and semistandardized interviews were used to estimate depression, somatization, pain, the prevalence of sexual and physical abuse, and the number of critical life events. ***Results:*** Diagnostic criteria for somatoform pain disorder were fullfilled in 73.3% of the ICPP patients, 60% of the ACPP patients and none of the controls. With respect to the somatization symptom checklist the two pain groups scored significantly higher than the controls ($p < 0.05$). Referring to perceived pain, ACPP patients differed from the ICPP patients by one out of seven subscales (higher persistence of pain; $p < 0.05$). No correlation was found between the intensity of pain and the severity of classified adhesions. The two groups of pain patients significantly differed from controls by a higher prevalence of sexual abuse ($p < 0.05$). Depression was found neither in the pain groups nor in the controls. ***Conclusions:*** Because high somatization and high prevalence rates of abuse were not only found in patients suffering from ICPP but also in ACPP patients, it seems to be doubtful that the somatic pathology may fully explain the psychopathology in patients with ACPP.

Introduction

Somatoform disorders are characterized by different, mostly persistent or recurrent complaints which are medically unexplained [1]. The concept of somatoform disorders is subject to ongoing scientific discussions [2–4] and, due to a missing etiological framework, patients often show a high utilization of medical care without satisfactory relief of their complaints [5, 6]. Following the consider-

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ations of van der Feltz-Cornelis and van Dyck [7], the reasons for this unsatisfactory state of the art can be seen in the lack of certainty about the definition of the disorders according to DSM-III-R [8] or DSM-IV [9] and the missing link between body and mind in the disease concept. Without conclusive concepts of the individual symptom constellation of somatoform patients, successful therapeutic interventions cannot be developed. From this point of view chronic pelvic pain (CPP) in women seems to be a prominent example of such disorders.

CPP is defined as noncyclic pain in the lower abdomen which persists for at least 6 months [10]. The prevalence of CPP is estimated to exist in up to 40% of all women during their reproductive life and CPP accounts for nearly 10% of outpatient gynecology consultations and nearly 20% of laparoscopies [11–15]. The most common gynecologic etiologies for CPP are adhesions, endometriosis or infections [16, 17]. The prevalence of adhesions in patients with CPP varies between 28 and 58.8% [18–21]. It should be noted that somatic pathology does not necessarily account for the extent of subjective complaints [22]. For example, Steege and Stout [23] reported no correlation between the extent of subjective pelvic pain and the severity of laparoscopically diagnosed adhesions. The prevalence of adhesions in symptom-free women is up to 17% [17] and laparoscopic results show that nearly twice as many women who never experienced pelvic pain as women with CPP showed adhesions [24]. Common explanations for the occurrence of intra-abdominal adhesions in these patients refer to prior gynecological surgery [25–27].

CPP in the absence of diagnosable somatic pathology is described as idiopathic chronic pelvic pain (ICPP), which is the case in more than 50% of all women suffering from CPP [10, 20, 21]. Elevated scores of depression, anxiety, and somatization seem to be psychopathological characteristics of these patients [14, 28, 29]. Recent studies indicate high prevalence rates of major sexual trauma and/or the experience of physical abuse in ICPP patients [30–32], therefore a stress-prone etiology of ICPP may be assumed.

In summary, no correlation has been found between reported pain and somatic pathology for both ICPP and CPP patients. This finding leads to the hypothesis that an increased self-awareness and hypersensitivity of bodily sensations in women suffering from ICPP or CPP corresponds to the pain symptomatology. This phenomenon, known as 'somatosensory amplification' [33], is a remarkable characteristic of somatoform disorders. Besides somatization, psychiatric disturbances like depression and anxiety, at least in women with ICPP, have been assessed. These disturbances are highly interrelated in somatoform disorders [34] and are possibly indicative of an underlying somatoform disorder in these women. In view of these considerations, we developed the following hypotheses: First, we assume that CPP according to the above-mentioned definition is one symptom of somatoform disorders (somatization disorder or somatoform pain disorder according to DSM-IV criteria). Second, we assume a stress-related etiology of CPP not only for ICPP but also for some forms of CPP with organic correlates, like adhesions. In order to test these hypotheses we investigated the history of critical life events and the prevalence of psychiatric disturbances, including somatization behavior, in women with ICPP and with CPP caused by adhesions as compared to infertile controls without pain.

Patients and Methods

Patients

A total of 26 patients with CPP (noncyclic pain with a duration of at least 4 months) and 14 infertile controls without pain participated in the study, which was part of an extended research project on the psychoendocrinology of CPP [35]. None of the examined women used oral contraceptives, hormonal medication or suffered from severe medical illness. All women were consecutively referred to the gynecological department of a general hospital (Herz-Jesu Krankenhaus Trier, Germany) for diagnostic laparoscopy during the early follicular phase of the menstrual cycle. All 40 patients underwent a baseline workup consisting of medical case history, physical examination, laboratory screening, hysteroscopy, and laparoscopy. In 16 of the 26 CPP patients no organic pathology was present, in the remaining 10 patients adhesions were found during laparoscopy. The degree of adhesions was rated according to the criteria of Donnez et al. [36] by the study gynecologist who was blind to the psychiatric diagnoses. In 5 of the 10 women slight adhesions (degree I) were diagnosed, in 3 patients adhesions were rated as degree II; degrees III and IV were rated in 1 woman each. Details of the medical diagnostic results are described elsewhere [37]. None of the participants showed any signs of an acute inflammation. The participants of the study were subdivided into three groups according to the results of the gynecological examination. Patients with chronic pelvic pain without organic pathology (ICPP; n = 16), patients with CPP and adhesions of the lower abdomen (ACPP; n = 10), or infertile controls without pain (n = 14). The mean age of the patients with ICPP was 27.9 years (SD 7.87), that of the patients with ACPP 28.8 years (SD 5.41), and that of the infertile controls 30.1 years (SD 2.81). There were no significant differences between the three groups in mean age or marital status.

Methods

Besides the standardized assessment of diagnoses according to DSM-III-R [38], all participants underwent semistandardized interviews and completed psychometric tests to estimate the self-reported

Table 1. Duration of pain and description of the actual pain according to the MSS in patients with ICPP, CPP and ACPP

	Patients with ICPP (n = 16)	Patients with ACPP (n = 10)	Significance	
			F	p
Duration of pain				
4–12 months	37.5[1]	40.0[1]		
1–5 years	50.0	30.0		
>5 years	12.5	30.0		NS
Scales of the MSS				
Intensity	2.7 ± 0.27[2]	3.4 ± 0.29[2]	3.47	0.076
Sharp rhythm	3.7 ± 1.01	4.6 ± 1.18	0.31	NS
Acc. discomfort	10.5 ± 0.94	11.0 ± 0.95	0.11	NS
Dull pain	3.7 ± 0.77	4.2 ± 0.95	0.16	NS
Unpredictable attack	3.7 ± 0.67	4.8 ± 1.21	0.72	NS
Pricking pain	3.9 ± 0.89	4.9 ± 0.68	1.03	NS
Persistent pain	9.1 ± 0.58	11.6 ± 1.12	4.48	0.046

[1] Percentages.
[2] Mean ± SE.

extent and quality of pain, the extent of unexplained physical complaints and depressive mood, and the number and quality of traumatic or critical life events.

In both groups of pain patients subjective ratings of the extent and quality of pain were assessed by a multidimensional pain inventory, the 'Mehrdimensionale Schmerzskala' (MSS) [39]. The questionnaire consists of 25 items which refer to one scale about the intensity of pain and six scales for the assessment of the quality of pain (sharp rhythm, accompanying discomfort, dull pain, unpredictable attack, pricking pain, persistent pain). Each item is rated on a 5-point Likert-like scale. To estimate the amount of somatic complaints during the last 7 days all participants completed a screening instrument for somatoform symptoms (SOMS) [40]. The questionnaire lists 53 somatic symptoms not caused by a physical condition. The participant is asked to rate whether each symptom is present or not. These symptoms are relevant to the diagnosis of somatization disorder according to DSM-III-R criteria. All positive items summed up give the total score of somatization symptoms. Depressive mood was estimated by a German version of the Self-Rating Depression Scale (SRD) of Zung [41]. The 20-item questionnaire measures primary symptoms of major depression and their occurrence and extent for the last 7 days are rated on a 4-point Likert-like scale.

Traumatic experiences of sexual or physical abuse during child- or adulthood were assessed by the Sexual Abuse Interview according to Russel [42] and the Sexual and Physical Abuse Questionnaire according to Drossman et al. [43]. According to the criteria of Russel, sexual abuse is defined as any involuntary sexual contact that reaches from being touched in an intimate part of the body to multiple oral, vaginal or anal intercourse. Physical abuse is defined by events reaching from repeated battering to enforced captivity. Major life events which occurred during the past 6 months and which were not associated with sexual or physical abuse were monitored by a structured interview [44]. The following areas of life were examined: Family, occupation, finances, spouse relation, illness, death, social activities, and other events, such as lawsuit or removal.

All data were entered into the SPPS/PC+ statistical software package. Depending on the type of assessed data, comparisons between all three groups of patients were either performed by χ^2 test, Kruskal-Wallis H test or unifactorial multivariate analysis of variance. For comparisons between the two groups of pain patients, Mann-Whitney U tests or Student's t tests were performed. Correlational analyses were performed by computing Pearson coefficients of correlation. Level of significance was set at probabilities of $p < 0.05$ (two-tailed).

Results

In comparison to controls free from pain, both groups of pain patients reported a significantly higher number of abdominal surgeries ($\chi^2 = 13.6$, $p = 0.001$). From the total of women with ICPP, 68.8% underwent prior laparoscopy and/or appendectomy, 50% of the women with ACPP had one or both of these surgeries, and 7.1% of the controls underwent laparoscopy. Regarding the duration of perceived abdominal pain, the patients of the two pain groups did not differ. With reference to the actual perceived extent and quality of pain, patients with ACPP described a significantly higher persistence of the pain than the ICPP patients (table 1). No significant correlation was found between the intensity of perceived pain according to the MSS and the severity of the classified adhesions ($r = -0.026$, NS).

The results for the assessment of diagnosis according to DSM-III-R from the standardized interviews are summa-

Table 2. Diagnosis according to DSM-III-R in patients with ICPP, CPP and ACPP, and in infertile controls without pain

	Patients with ICPP (n = 15)	Patients with ACPP (n = 10)	Controls (n = 10)
Main diagnosis DSM-III-R			
Somatization disorder			2
Somatoform pain disorder	11	6	–
Undiff. somatoform disorder	5	4	–
Specific phobia	–	–	1
Additional diagnosis			
PTSD	6	1	–
Personality disorder	2	–	–

rized in table 2. Somatoform pain disorder was diagnosed in 73.3% of the ICPP patients and in 60% of the ACPP patients but in none of the controls. The diagnosis of undifferentiated somatoform disorder was assessed in 33.3% of the ICPP group, in 40% of the ACPP group, and in none of the controls. None of the pain patients showed somatization disorder while this diagnosis was found in 14.28% of the controls. Both of these women did not describe pain symptoms of the lower abdomen. One woman of the control group showed a specific phobia. In 40% of the patients with ICPP and in 10% of the patients with ACPP an additional diagnosis of posttraumatic stress disorder (PTSD) was assessed. A personality disorder was found in 13.3% of the patients with ICPP.

Table 3. Results from the screening for SOMS and SRD in patients with ICPP, CPP and ACPP, and in infertile controls without pain

	Patients with ICPP (n = 15)	Patients with ACPP (n = 10)	Controls (n = 14)	Significance[4]	
				F	p
SOMS	8.50 ± 4.59[1]	10.77 ± 1.86[2]	2.92 ± 4.23	8.94	<0.001
SRD[3]	47.14 ± 2.28	45.60 ± 2.03	42.21 ± 2.88	1.09	NS

Values are mean ± SE.
1 Post hoc t test: patients with ICPP vs. controls; t = 3.23, p = 0.003.
2 Post hoc t test: patients with ACPP vs. controls; t = –3.90, p < 0.001.
3 Index values: <50 no depression, 50–60 mild depression, 60–70 moderate depression, >70 severe depression.
4 By analysis of variance.

Table 4. Prevalence rates of sexual abuse, physical abuse, number of critical life events in patients with ICPP, CPP and ACPP, and in infertile controls without pain

	Patients with ICPP (n = 15)	Patients with ACPP (n =10)	Controls (n = 10)	Significance[3]	
Sexual abuse	66.7[1]	50.0[1]	21.4[1]	$\chi^2 = 6.04$	p = 0.048
Physical abuse	60.0	40.0	21.4	$\chi^2 = 4.45$	NS
Critical life events	6.20 ± 0.51[2]	6.40 ± 0.45[2]	4.79 ± 0.46[2]	F = 2.92	p = 0.067

1 Percentages.
2 Mean ± SE.
3 By analysis of variance.

Table 5. Description of sexual abuse and physical abuse experiences in patients with ICPP, CPP and ACPP, and in infertile controls without pain

	Abused patients with ICPP		Abused patients with ACPP		Abused controls	
	%	n	%	n	%	n
Sexual abuse						
Total number of patients		10		5		3
Age at victimization						
Childhood	70	7	20	1	–	
Adulthood	60	6	80	4	100	3
Both	30	3	–		–	
Perpetrator						
Incest	70	7	20	1	67	2
Extrafamilial	40	4	80	4	67	2
Both	10	1	–		33	1
Frequency of victimization						
Single event	60	6	80	4	67	2
Multiple events	40	4	20	1	33	1
Severity of sexual abuse[1]						
Very severe sexual abuse	70	7	40	2	33	1
Severe sexual abuse	–		–		–	
Least severe sexual abuse	30	3	60	3	67	2
Physical abuse						
Total number of patients		9		4		3
Age at victimization						
Childhood	33	3	25	3	33	1
Adulthood	67	6	75	3	67	2
Both	–		25	1	–	
Perpetrator						
Intrafamilial	67	3	75	3	67	2
Extrafamilial	33	3	25	1	33	1
Both	–		–		–	
Frequency of victimization						
Single event	22	2	50	2	33	1
Multiple events	78	7	50	2	67	2
Severity of physical abuse						
Battering	100	9	50	2	67	2
Threat by arms			50	2	33	1

[1] Sexual abuse is defined according to the criteria of Russell [42] as follows: Very severe sexual abuse includes genital intercourse, fellatio, cunnilingus, analingus, anal intercourse. Severe sexual intercourse includes unclothed genital and/or breast contact, simulated intercourse. Least severe sexual abuse includes sexual kissing, intentional sexual touching.

The three groups of patients significantly differed with respect to the number of bodily complaints during the previous 7 days ($F = 8.94$, $p < 0.001$). Post hoc comparisons between the groups showed significantly higher numbers of bodily complaints in the two groups of pain patients than in the controls (table 3). None of the three groups were clinically depressed as indicated by SRD scores (table 3).

With reference to the prevalence rates of sexual abuse, the three groups of women differed significantly (table 4).The pain patients reported more abuse experiences in comparison to the controls. Post hoc analysis showed significantly higher sexual abuse rates for women with ICPP in comparison to the control group ($\chi^2 = 5.99$, $p = 0.014$). The two groups of pain patients also reported higher abuse rates than the controls for physical abuse, but the difference did not reach significance (for a de-

tailed description of abuse experiences see table 5). There was a trend towards a higher number of negative critical life events in the two groups of pain patients in comparison to the control group (table 4).

Discussion

The association between sexual and physical abuse and ICPP has been extensively reported [13, 31, 45]. The data of our study confirm these findings for women with ICPP in comparison to our control group. Beyond this we found an increased prevalence of sexual and physical abuse in the group of women with CPP and verified abdominal abhesions (ACPP). The prevalence rates in both groups of pain patients are not only increased with reference to the controls but also higher compared to prevalence rates of sexual abuse in nonpsychiatric female populations [46]. With reference to the occurrence of critical life events during the 6 months prior to laparoscopy, both groups of pain patients reported a higher amount of life events than the controls, while there was no significant difference between the two groups of pain patients. Taken together, these results suggest that women with CPP, irrespective of the somatic pathology, are burdened by traumatic or major critical life events. This is also shown by the assessed psychiatric diagnoses, in which the experiences of traumatic events are reflected in a high number of diagnoses of PTSD. While none of the controls showed diagnosable PTSD, this diagnosis was obtained in 40% of the ICPP group and 10% of the women with ACPP. In each of these women the symptom-provoking event was the experience of sexual and/or physical abuse.

Most interestingly, none of the three groups of women reported depressive mood. This finding is contrary to the data described in most studies for the assessment of psychopathology in women suffering from CPP [14, 31, 47]. Possible explanations for this finding are twofold: First, in contrast to prior reported studies, we investigated three very homogenous groups of patients; no other than the described physical or psychiatric disturbances were found. A comorbidity with an additional diagnosis like substance-related disorders, which could explain depressive mood, was not found. Second, depression was assessed by a specific depression scale. Most studies used overall symptom checklists or personality inventories which may lead to nonspecific results referring to depression.

Both groups of patients reported nearly the same duration of pain experiences. The results of the pain questionnaire replicates the findings of Hodgkiss and Watson [14] in part, who found higher pain ratings in a mixed group of organ-related CPP patients than in ICPP patients. Furthermore, our results replicate the finding of Steege and Stout [23], who reported a missing correlation between the intensity of pain and the localization and severity of adhesions. The high scores on the somatization questionnaire for both groups of pain patients indicate that not only women with ICPP but especially those with ACPP suffer from a variety of unexplained bodily complaints in contrast to the controls. Even under exclusion of the two items which check lower abdominal complaints (i.e., abdominal pain, not related to menstruation; pain during intercourse), both patient groups still score above the cutoff of 6 symptoms for women in the somatic symptom index (SSI) for somatoform disorders as defined by Escobar et al. [48].

In summary, the patients with ICPP and ACCP differed from the control patients by a marked psychopathology in terms of DSM-III-R diagnoses, a higher number of somatization symptoms, an increased prevalence of sexual abuse, and a higher number of critical life events. The comparison between the two groups of pain patients reveals only marginal differences with respect to these parameters. Since a correlation between the reported pain intensity and the severity of adhesions was missing, it seems to be doubtful that the somatic pathology may fully explain the psychopathological findings. Our data do not allow any causal conclusions about a possible stress-prone etiology of CPP associated with abdominal adhesions, but some findings on CPP associated with endometriosis may give evidence for such hypothesis. In these patients a lack of correlation between the occurrence and extent of endometriosis and described pain has also been reported and a prevalence of endometriosis rates up to 22% in asymptomatic women [49–51]. Animal and human studies on endometriosis indicate that psychosocial stress may promote the occurrence of endometriosis [52–54]. Psychopathologically, these patients show elevated scores of somatization and depression [55, 56]. On the other hand, Reiter et al. [30] found neither increased prevalence rates of sexual abuse nor heightened scores of somatization in a group of CPP patients with mixed somatic abnormalities. However, patients with abdominal ahesions and patients with endometriosis were excluded. An inclusion of those two forms of CPP may have brought different results with respect to the prevalence rates of traumatic experiences and psychopathology.

Our conclusions are that CPP should not only be seen as a constellation of symptoms of the lower abdomen but

the diagnostic view should also be aimed at additional bodily complaints. As a consequence, in those women who report a variety of complaints in addition to lower abdominal pain, somatic examinations should not only focus on the predominant pain but also on the additional complaints. If these examinations do not result in the identification of an unambiguous somatic pathology, the diagnosis of a somatoform disorder should be performed, according to the individual constellation of symptoms. From our point of view, further studies should aim at investigating whether noncyclic CPP represents an additional symptom of somatoform disorders, specifically somatization disorder.

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